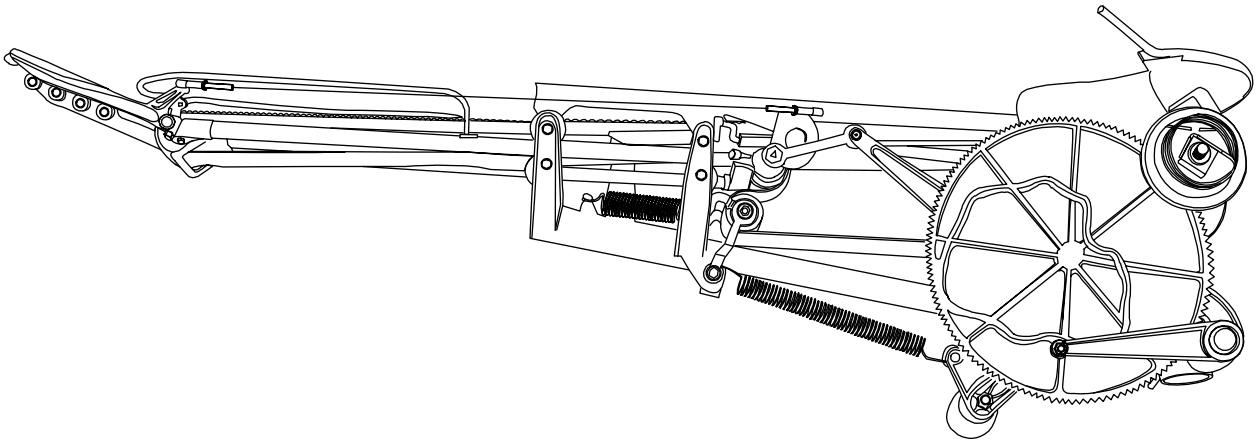
AMF 90XL*i* Pinspotter

PIN DISTRIBUTOR

Pinspotter Manual Supplement



DISTRIBUTOR 1

400-088-012 Rev. A

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SUMMARY OF CHANGES

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List of Effective Pages

Page	Change No.	Effective Date
All	Revision A	10/29/2004

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SAFETY

General Safety Guidelines

AMF believes strongly in its commitment to safety. Proper service and repair are important to the safety of the mechanic as well as the safe, reliable operation of the pinspotters. Please read, understand, and follow all of the recommended safety procedures presented in this manual.

The procedures recommended and described in this technical manual are effective methods of performing service and repair. Some of these procedures require the use of tools specially designed for this purpose.

- **Properly trained personnel should be present whenever maintenance is being performed on a pinspotter.**
- **No unauthorized personnel should be allowed in the pit area.**
- **Keep in mind that the pinspotter performs a series of mechanical motions and electrical actions during each cycle, and that bodily injury could result should personnel enter the machine when power is on. When working on a pinspotter, it is recommended that power also be turned off on adjacent machines.**
- **Remember that safety must remain your first priority at all times.**
- **Safety goggles, ear protection, and steel-toed shoes are recommended whenever any work is being performed on a pinspotter.**
- **Wearing loose clothing or jewelry is NOT RECOMMENDED when operating or maintaining the machinery.**

Safety Labels and Symbols

It is important to understand the safety labels and symbols used in this manual set. Three of these labels are used to show the relative risk associated with a particular activity or instruction. These labels are shown below in order of decreasing importance. Be aware that taking shortcuts or failing to heed applicable safety information can result in serious injury or damage and can render the pinspotter unsafe for you as well as for others who follow in your place.

⚠ DANGER **⚠ WARNING** **⚠ CAUTION**

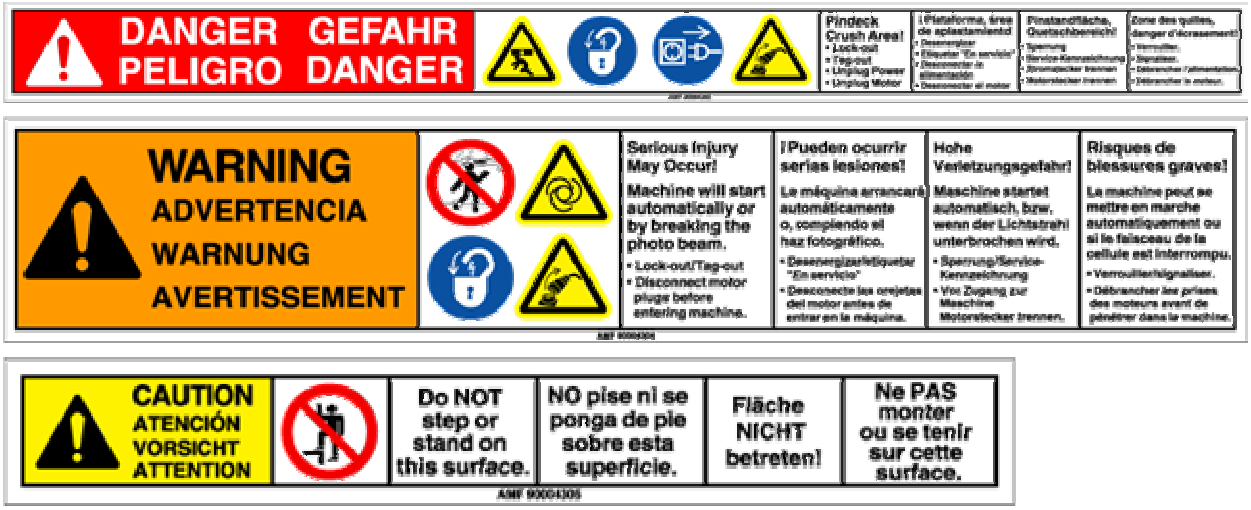
⚠ DANGER indicates a hazardous situation that presents a potentially crippling or life-threatening situation.

⚠ WARNING indicates a potentially hazardous situation that could result in serious injury or equipment damage.

⚠ CAUTION indicates a potentially hazardous situation that could result in minor to moderate injury if not avoided. It may also be used to alert against potentially unsafe practices.

Other warning labels are conspicuously located on the pinspotter and are designed to warn against possible hazards. These labels, some of which are shown below, are there for your protection. Removing or disregarding these labels can result in serious injury.

WARNING AVERTISSEMENT
ADVERTENCIA WARNUNG
STOP. READ and UNDERSTAND TECHNICAL MANUAL Before Servicing Machine.
DETÉNGASE. LEA y COMPRENDA el MANUAL TÉCNICO antes de iniciar las tareas de servicio.
HALT! Vor Arbeiten an der Maschine das TECHNISCHE HANDBUCH LESEN und VERSTEHEN.
ARRÊTER. LIRE et veiller à bien COMPRENDRE les instructions du MANUEL TECHNIQUE avant de travailler sur la machine.
LOCKOUT/TAGOUT. UNPLUG Main Power and UNPLUG Motor Before Servicing Machine. See Lockout Safety Procedure.
DESENERGIZAR/ ETIQUETAR "EN SERVICIO" Desconecte la alimentación de la red y DESENCHUFE el motor antes de realizar las tareas de servicio. Consulte los procedimientos seguros para desenergizar.
SPERRUNG/SERVICE-KENNZEICHNUNG Vor Arbeiten an der Maschine Stromstecker und Motorstecker ZIEHEN. Siehe auch Sperrsicherheits-vorschriften.
VERROUILLER/SIGNALISER. DÉBRANCHER l'alimentation principale et le moteur avant de travailler sur la machine. Consulter la procédure de verrouillage de sécurité.
DO NOT BREAK PHOTO BEAM. Machine will cycle, STARTS AUTOMATICALLY. CRUSH HAZARD. Pin Deck Area.
NO ROMPA EL HAZ FOTOGRÁFICO o la máquina arrancará. ARRANCA AUTOMÁTICAMENTE. PELIGRO DE APLASTAMIENTO. Área de la plataforma.
LICHTSTRAHL NICHT UNTERBRECHEN, da sich sonst die Maschine einschaltet. STARTET AUTOMATISCH. QUETSCHGEFAHR. Pinsenfläche.
NE PAS INTERROMPRE LE FAISCEAU DE LA CELLULE, la machine se mettrait en marche. DÉMARRAGE AUTOMATIQUE. DANGER D'ÉCRASEMENT. Zone des quilles.
DO NOT OPERATE WITHOUT GUARDS Properly installed. BELT ENTANGLEMENT. GEAR ENTANGLEMENT.
NO HAGA FUNCIONAR LA MÁQUINA SIN GUARDAS debidamente instaladas. ATASQUE DE LAS CORREAS. ATASQUE DE LAS MARCHAS.
INBETRIEBNAHME OHNE einwandfrei angebrachte SCHUTZGITTER VERBOTEN. GURTVERWICKLUNG. GETRIEBEVERWICKLUNG.
NE PAS METTRE EN MARCHE SI LES PROTECTIONS NE SONT PAS correctement installées. RISQUE D'ACCROCHAGE/ CHUTE
FALL / TRIP HAZARD. Do not use Front-End Platform Guards as a Catwalk to access other Pinspotters in Operation.
PELIGRO DE CAÍDAS/VUELCO. No use las guardas de la plataforma frontal como pasarelas para acceder otras recogedoras en operación.
FALL- BZW. KIPPGEFAHR Frontplattform-Schutzgitter nicht als Laufsteg zum Zugang zu anderen Pinsuchern in Betrieb benutzen.
Ne pas utiliser les protections de la plate-forme avant pour accéder aux autres remplisseur en fonctionnement.
EYE PROTECTION REQUIRED. HEARING PROTECTION REQUIRED.
SE NECESITA PROTECCIÓN OCULAR. SE NECESITA PORTECCIÓN AUDITIVA.
AUGENSCHUTZ ERFORDERLICH. OHRENSCHUTZ ERFORDERLICH.
PROTECTION OCULAIRE REQUISE. PROTECTION AUDITIVE REQUISE.
NO ACCESS FOR UNAUTHORIZED PERSONS. Service by Authorized Trained Personnel Only.
NO SE PERMITE LA ENTRADA A PERSONAL NO AUTORIZADO. Sólo personal autorizado puede realizar tareas de servicio.
KEIN ZUGANG FÜR UNBEFUGTE. Service nur durch befugtes Fachpersonal!
ACCÈS INTERDIT AUX PERSONNES NON AUTORISÉES. Les entretiens ne doivent être effectuée que par un personnel dûment formé et autorisé.



– **Refer to the Service Manual before performing maintenance or repair.**

– **Caution! Severe pinching hazard - belts.**

It is also important to understand that the use of these symbols and labels is not all-inclusive because it is impossible to warn of all the possible hazards and consequences that could result from failure to follow these instructions. Trained and competent bowling center mechanics are able to recognize and avoid potentially hazardous situations.

Guards and Safety Precautions

All safety guards must be in place before operating the machine. When maintenance is required, the following steps must be followed:

1. **Disconnect the power plug** before working on the pinspotter.
2. Remove guards only as required to perform the maintenance.
3. Once maintenance is complete, replace all guards.

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1.0 INTRODUCTION

1.1 How To Use This Manual

This manual is provided for use by trained and authorized bowling center mechanics in conjunction with the adjustment, operation, and maintenance of Distributors installed in AMF 90XL*i* pinspotters. The purpose of this manual supplement is to consolidate all of the applicable Distributor information into one easy-to-use document making finding the information you need simpler and faster when compared to having the information scattered throughout the pinspotter manual.

This manual does not cover initial installation of the Distributor, but does cover removal and reinstallation of the unit for maintenance and adjustment. Refer to the drawings at the back of this manual for detailed views of the Distributor's construction.

There are six parts to this manual supplement: Safety, Introduction, Operation & Adjustment, Lubrication, Troubleshooting, and Drawings and Parts Lists.

- The Safety section provides information on precautions that should be taken when working in and around the Distributor, including examples of safety labels and symbols used on the pinspotter to indicate potential hazards.

- The Introduction Section outlines the manual.

- The Operation and Adjustment Section gives step-by-step instructions for setting up and adjusting the Distributor, as well as information related to the operation of the unit.

- The lubrication Section provides drawings and information concerning the proper lubrication of the Distributor. Maintaining the Distributor in accordance with this section can help attain maximum component life and trouble-free operation.

- The Drawings and Parts Lists Section is designed to be an invaluable tool for identifying parts and part numbers for maintenance and repair of the unit.

This manual is intended to be a supplement to, and is included with, the AMF 90XLi Pinspotter Manual Set.

Refer to the Safety Section of this manual before proceeding with Distributor maintenance.

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2.0 DISTRIBUTOR OPERATION & ADJUSTMENT

2.1 Distributor Operation

The distributor transfers pins from the pin elevator wheel to the bin assembly. The distributor is driven by the back end motor through an adjustable clutch to its various positions. A large nylon cam gear (see Figure 2-1) serves a dual purpose:

- The outside of the gear contains a cam that moves the distributor left and right to the various bin locations.
- The inside of the gear has a cam that controls the telescoping action of the front portion of the distributor. Springs keep the cam followers against the cams.

When a pin reaches the top of the elevator wheel, it is deposited on the pan which orients it, bottom first, onto the distributor belt. As the pin reaches the end of the distributor, the weight of the pin causes the trip lever assembly to pivot downward depositing the pin in the bin. The pivot lever also causes the cam gear to index to the next bin position.

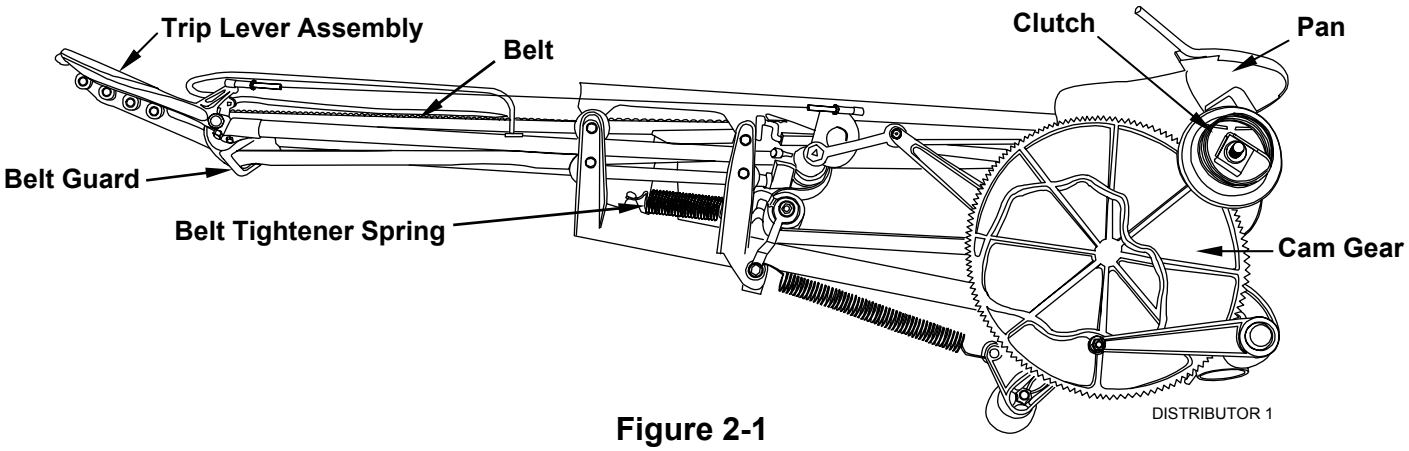


Figure 2-1

Proper adjustment of all distributor components is essential for trouble-free operation. Excessively worn parts must also be replaced. Additionally, related assemblies must be correctly adjusted. This includes the pin ejector, pin seating rod, and pin guide rail. The condition of the distributor drive shaft, universal joint, and drive housing as well as a smooth operating pin elevator wheel are also important to trouble-free distributor operation. Also, the inside of the pin wheel should be cleaned regularly to prevent pins from sticking in the wheel pockets.

2.2 Distributor Belt Replacement

1. Remove the belt tightener spring (see Figure 2-1).

2. Locate the belt lacing and remove the pin. The distributor belt can now be removed from the distributor.

3. To increase the belt tension, cut off a little from one end of the belt. Belt tightener spring length will increase one-half of the amount cut off the belt. A belt that is a little too long or short can cause pin feeding problems, and the ideal length can vary a little from machine to machine. If replacing a worn belt that has otherwise performed well, make the new belt the same length as the old one.

4. If necessary, prepare a new belt in accordance with Section 2.2.1.

5. Use the Clipper belt lacer part # 088-000-108 to install new clipper lacing on the belt in accordance with Section 2.2.2.

6. Thread the belt onto the distributor keeping one end on the belt runner about a foot behind the trip arm making sure to thread the belt through the belt guard. If necessary, use another distributor as a guide to belt layout. When threaded, bring the two ends together, interlock the lacing, and install the belt pin. The end of the pin can be bent over to keep the pin from working loose.

7. Reinstall the belt tightener spring.

8. Turn the machine on and verify proper operation. If the belt tracks off to one side, turn the machine off, disconnect the belt tightener spring from the distributor casting, and move the end of the spring that is attached to the tracking bracket one notch toward the side the belt was tacking. Reattach the other end of the spring.

9. Run the machine and make any necessary adjustments.

The new grooved distributor belt comes cut to length (116¼" ±1/4" [2953 mm ±6 mm]), is pre-skived and chamfered. All that is necessary is to add the lacing and install. It is always a good idea to verify the overall length needed and to fine-tune the length by trimming as needed before applying the lacing. The lacing will add approximately ¼ inch to the overall length.

The AMF 90XL*i* pinspotter distributor uses the following belt components:

- **088-001-350, Grooved Distributor Belt – precut, skived, and chamfered**
- **088-000-071, Stainless Steel Belt Lacing (2 required per belt)**
- **088-000-070, Notched Belt Lacing Pin**
- **088-000-108, Vise Lacer**

2.2.1 Preparing Rough Top Belts

Skiving rough top and other raised surface belting is an important step in achieving maximum benefits and life from belt splices. Clipper's Rough Top Belt Skiver (Fig. 2-2) removes raised surfaces within seconds, leaving a smooth surface for selecting and installing belt fasteners. The Rough Top Belt Skiver is a safe and effective alternative to other methods of removing raised surfaces such as grinding wheels, razor blades or knives. Being a hand held tool, this job can be done virtually anywhere.

ROUGH TOP BELT SKIVER – AMF Part # 792-516-021

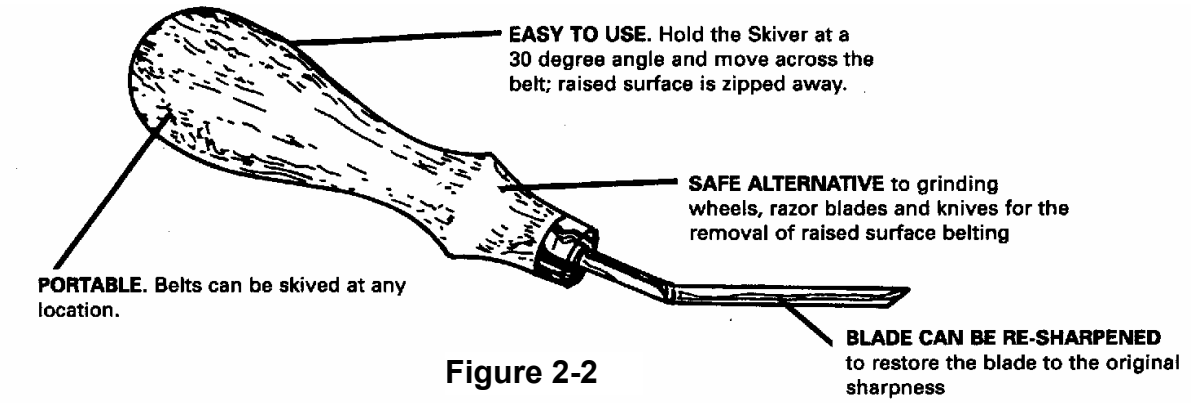

EASY TO USE. Hold the Skiver at a 30 degree angle and move across the belt; raised surface is zipped away.
SAFE ALTERNATIVE to grinding wheels, razor blades and knives for the removal of raised surface belting
PORTABLE. Belts can be skived at any location.
BLADE CAN BE RE-SHARPENED to restore the blade to the original sharpness

Figure 2-2

Instructions:

1. Place the belt on a solid surface; hold securely with your free hand.

⚠CAUTION Keep hand out of the path of the skiver.

2. Hold Skiver at about a 30-degree angle to the belt (Fig. 2-3). Slowly begin cutting into the belt surface just under the raised top.

3. Maintain an even pressure and move Skiver across the belt (Fig. 2-4). If held at proper angle, it will cut through the belt easily.

4. Skive rough top back one inch from each end to allow clearance for lacer jaws during lacing operation.

To Sharpen: (Fig 2-5 A & B)

5. Place 1/4" fine stone or emery board in cutting channel. Draw away from tool.

6. After tool is sharp, draw stone across bottom to remove burrs.

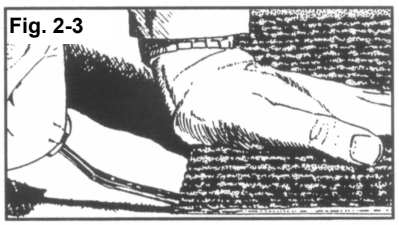


Fig. 2-3

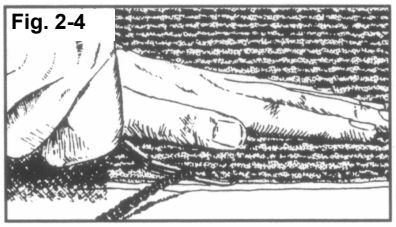


Fig. 2-4

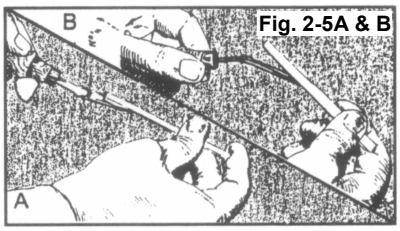


Fig. 2-5A & B

2.2.2 Vise Lacer Instructions

The clipper belt lacer is provided to help the center mechanic manufacture replacement distributor belts. The optimum belt length can vary slightly from distributor to distributor. If possible, match the existing belt length. The belt lacing will add approximately 1/4 inch to the overall, installed belt length. One end of the belt should have lacing containing an odd number of individual hooks while the other end should have lacing with an even number of hooks (see Figure 2-7b). To make a belt, proceed as follows:

1. Cut a section of belt material to the appropriate length (approximately 116¼ - 116½ inches). The approximate finished belt length is from 116½ 116¾ inches.

2. Place the open clipper belt lacer (Figure 2-6a) between the jaws of a vise. Remove the guide pin from the hole in the end of the lacer, if installed.

3. Place card of hooks in retainer. Insert lacer pin and remove carding paper.

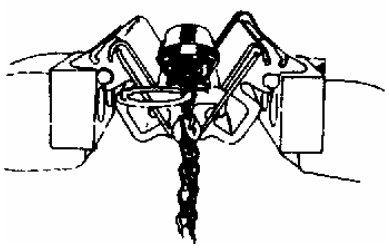


Figure 2-6a

4. Insert belt between hook points. For optimal splice, it is recommended to have the bottom side of belt facing the pressure plate.

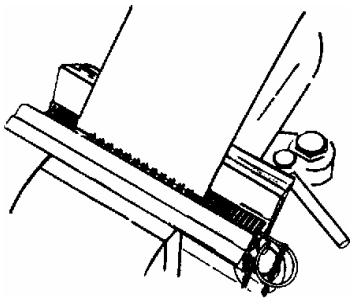


Figure 2-6b

5. Close vise as tightly as possible, then release.

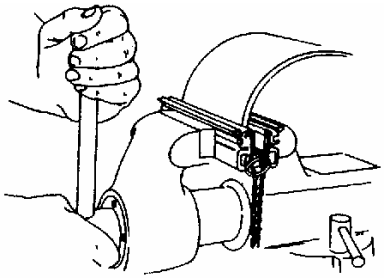


Figure 2-6c

6. When complete, remove the lacer pin, and lift the belt out of the lacer.

NOTE: If the belt is wider than the vise jaws, perform the following steps:

A. Align belt and lacer with edge of vise jaw.

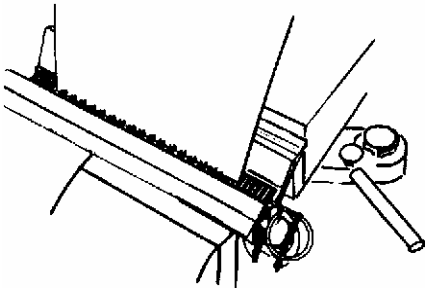


Figure 2-6d

B. Complete lacing step 5.

C. Slide tool so next section of the lacer is in contact with the vise jaws and complete step 5 again.

D. Finish with step 6.

2.2.3 Identifying A Good Splice

Often not enough emphasis is placed on the proper selection and installation of belt laces. Unfortunately, if improperly installed, the result can be devastating — shortened splice life, added costs, and increased down-time; just to mention a few. Listed below are suggestions, which if followed, will increase your splice longevity.

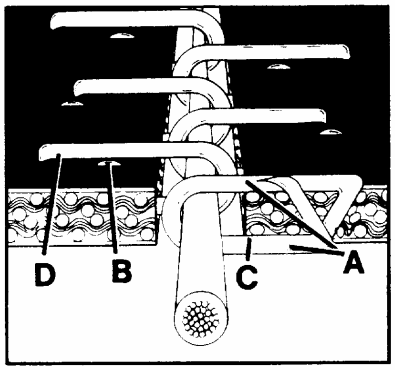


Figure 2-7a

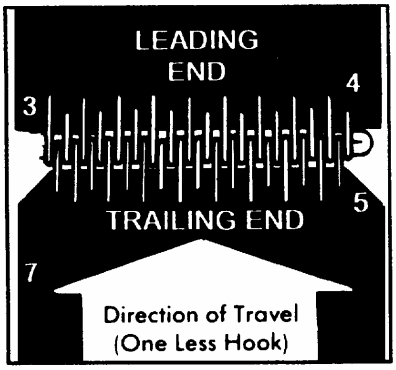


Figure 2-7b

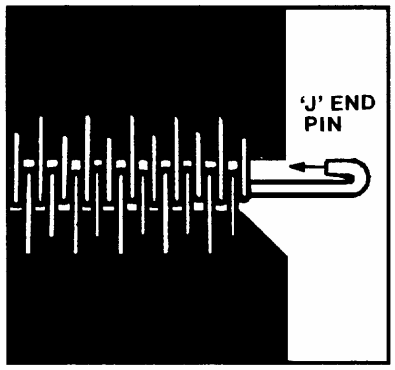


Figure 2-7c

What to look for:

1. Skive rough top back approximately one inch. Use proper size lacing based on skived belt thickness and pulley diameter. The correct lacing is provided with the distributor belt assembly.
2. Hook is properly sized and clinched when: (Fig. 2-7a)
   - **A**. Hook legs are parallel. Loop should not have a light bulb shape.
   - **B**. Hook points slightly penetrate opposite side of belt (.005 to .015 inches).
   - **C**. 1/3 - 1/2 of the wire diameter is embedded into the belt.
   - **D**. The “Knuckles” of the hook should not be higher than the legs when installed.
3. Leave 1/4 inch on each edge of belt unlaced. This guards against end hooks being pulled out.
4. Use one more hook on leading edge than on trailing edge (Fig. 2-7b).
5. Chamfer the trailing edge. (AMF’s new grooved belts are already chamfered.)
6. Laces should be uniformly embedded across the entire width of the splice.
7. Edges of the belt should line up when the laced belt ends are connected.
8. Run fingernail across loops of splice. Loops should not move.
9. **It is not necessary to bend the new notched stainless steel pins**, but they can be bent at the ends to form a ‘J’ if desired (Fig. 2-7c).

2.3 Distributor Removal

1. Disconnect the drive shaft and universal joint from the distributor drive unit.

2. Remove the lateral drive spring and safety link spring from the base of the distributor (see Figure 2-8).

3. Make sure that the elevator wheel is turned so that a pin bracket is not directly above the orientor pan of the distributor.

4. Lift the distributor assembly upward off the support post. Save the spacer between the support post and the distributor for reuse during distributor installation.

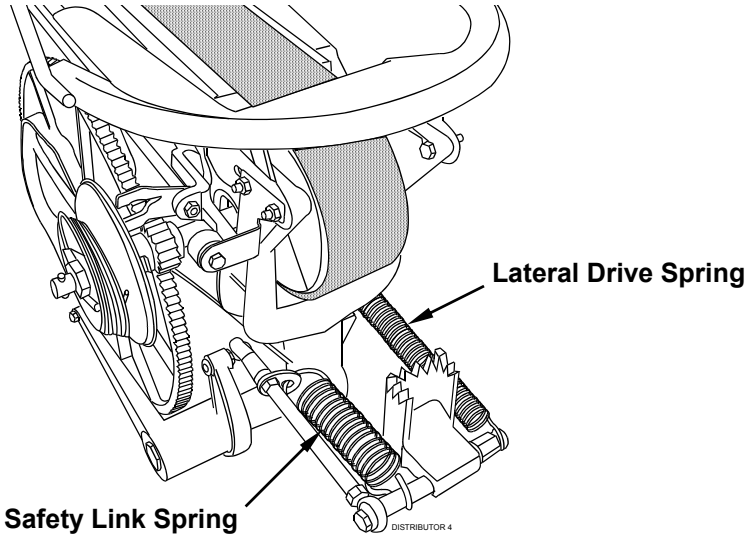


Figure 2-8

2.4 Distributor Replacement

1. To replace the distributor drive assembly, follow the removal procedure in reverse order. Ensure that only one spacer is installed between the support post and the distributor.

2. Check the timing marks for correct alignment. The distributor must be at the #1 bin position when checking or adjusting. There is a raised bump on the large nylon gear at the base of one of the valleys between the teeth, and a notched tooth on the pinion gear that must be opposite one another for correct timing. The nylon gear is flexible and can be disengaged from the pinion by applying pressure towards the distributor where the gears mesh to allow realignment of the marks.

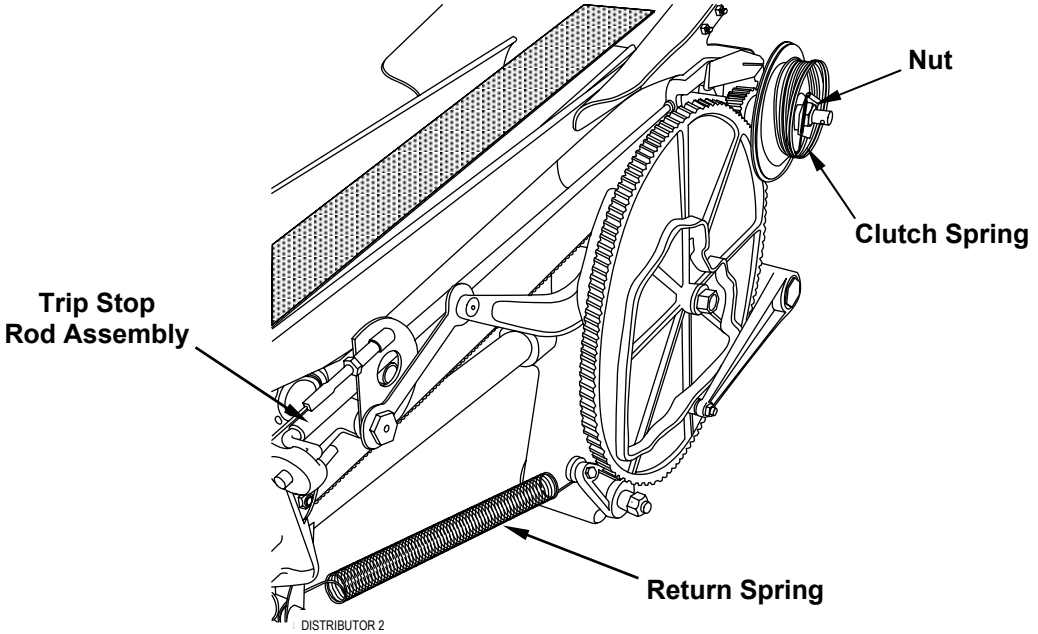


Figure 2-9

3. Set the clutch spring tension (Figure 2-9). With the clutch nut finger tight on the shaft, rotate the spring's adjusting clip in the counterclockwise direction until you just start to feel some spring tension. Continue rotating the clip an additional 3/4 turn, and then slide the clip onto the clutch nut. Power up the machine and feed pins.
   a. If the spring is not compressed enough, the distributor will stall between the #6 and #10 positions. Add more tension to correct this condition.
   b. If the distributor hesitates or fails to index, other than mentioned in the previous step, tension must be removed by reducing the spring tension.
   c. Adjust the spring tension one notch at a time, and use the minimum tension that produces acceptable results.

4. When the distributor is at the #1 bin position, the distance between the distributor orientor pan and the elevator wheel should be as close as possible without touching (¼ inch or less) and should not touch during pin wheel and distributor operation. If adjustment is necessary, loosen the orientor pan's mounting bolts and position accordingly.

2.5 Distributor Cam Operation

The cam has a timing mark along its outer edge at the base of a valley between two teeth. This bump and a notched tooth on the pinion gear must be aligned for proper timing. See the previous section for instructions on how to realign the cam and pinion gear. The outer face of the large cam is marked for the feed positions of the pins, which are attained as the outer cam follower traces the path laid out by the cam sections. **The pin feed sequence is 1, 3, 2, 4, 7, 8, 5, 6, 10, 9.**

The inside of the cam controls the telescoping of the distributor using cam sections and a cam follower in a manner similar to the operation described in the previous paragraph. During operation, the distributor is forced inward by the action of the inner cam follower, and telescopes outward because of a combination of return spring tension and a moving belt's tendency to straighten out whenever the cam follower's linkage allows it to do so.

2.6 Distributor Adjustments

1. Index the trip stop rod (Figure 2-9) to position the distributor at the #1 bin position.

2. Inspect the nylon cam gear and pinion gear to verify that the timing marks are aligned.

3. The distributor should be in line with the #1 and #5 bin positions. To adjust, loosen the jam nut on the hoop weldment end of the safety link rod (see Figure 2-10) and rotate the safety link rod to either increase or decrease the length of the rod to obtain the correct alignment. Tighten the jam nut.

4. Operate the machine and note the pin feed operation at the individual bin pockets. The rod length may have to be readjusted slightly to obtain accurate pin feed.

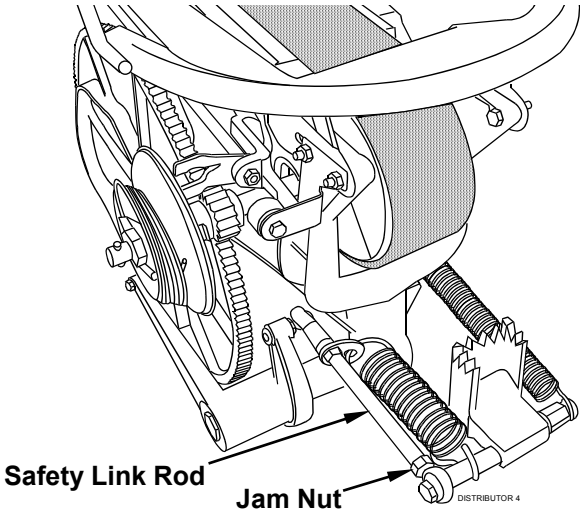


Figure 2-10

2.7 Distributor Roller Adjustments

1. Starting with the distributor at the #1 bin position and the back end drive motor turned off, telescope the distributor inward so that it is at its minimum length.

2. Position the front lower adjustable roller in its lowest position so that the distance between the roller and the carriage tube is at its maximum. (See Figure 2-11.)

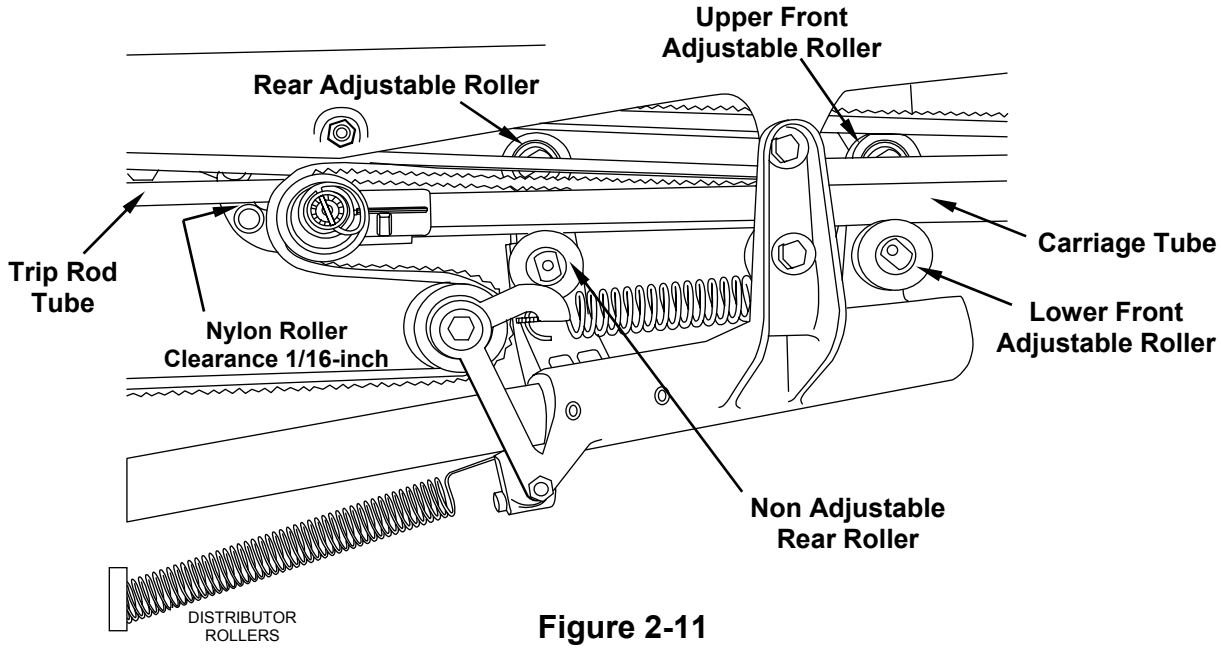


Figure 2-11

3. Bring the rear adjustable roller down until there is a noticeable drag against the carriage tube when you turn the roller. (Too much drag could prevent the distributor from extending.)

4. Adjust the upper front adjustable roller until the trip rod tube and carriage tubes are parallel to each other.

5. Position the front lower adjustable roller up until it just makes contact with the carriage tube.

6. Recheck the rear adjustable roller to ensure that it is not exerting too much pressure against the carriage tube. Adjust if necessary.

7. Adjust the length of the cable assembly (Figure 2-12) so that the clearance between the nylon rollers and the trip rod tube is approximately 1/16 inch (Figure 2-11) and is the same in all positions of the distributor.

8. Operate the distributor under power and observe. As necessary, fine-tune the rollers and trip cable.

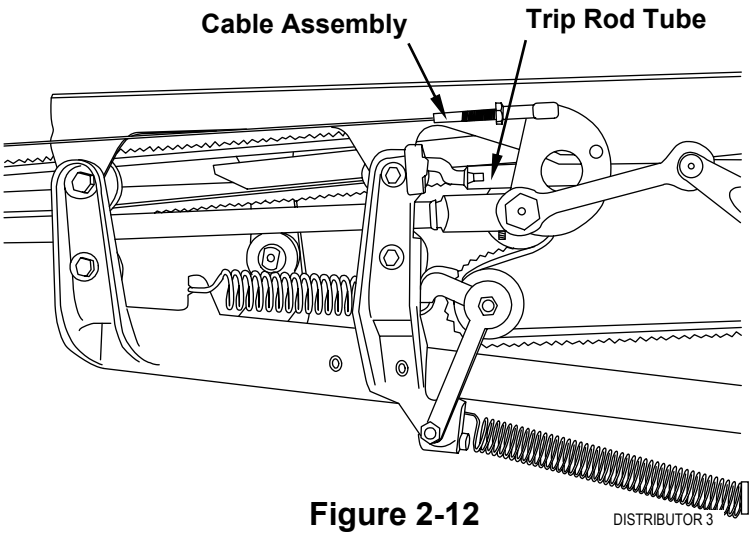


Figure 2-12

2.8 Distributor Trip Lever

1. Operate the distributor trip lever. Inspect for mechanical binds in the lever and associated linkage. Check that the rollers turn freely.

2. As a pin transfers from the distributor belt onto the trip lever, the weight of the pin causes the lever to pivot downward as the pin is deposited in the bin. Afterwards, the trip lever returns to the up position from the force of a spring located at the rear of the carriage tube (see Figure 2-13). This tripping and resetting action actuates the trip rod allowing the distributor to index to the next bin position. The spring tension is factory set for 1/2 turn. Too much spring tension would prevent the trip lever from deflecting causing the distributor to fail to index.

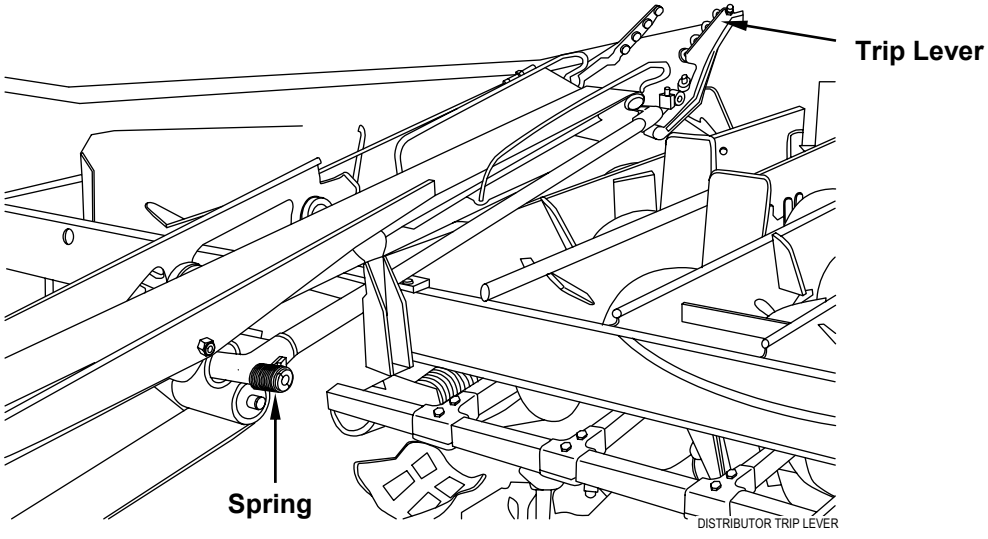


Figure 2-13

3.0 LUBRICATION INSTRUCTIONS

3.1 LUBRICATION

Lubrication is one of the most important items in the proper operation and maintenance of the distributor. Care must be taken to ensure that lubricants are applied correctly. Avoid excessive lubrication to minimize the possibility of transmitting lubricants to the bowler. Before lubricating exposed parts or surfaces, it is important that the old lubricant first be removed. It is also very important to clean the distributor as you lubricate.

This section of the manual shows the points of lubrication, the correct lubricants to use, and the frequency of lubrication for each part of the distributor that requires lubrication.

3.2 LUBRICANT SYMBOLS

OILING: Items indicated by a number within a square [1] require oiling. Use SAE #10 oil as the lubricant.

GREASING: Items indicated by a number within a circle (1) require greasing. Use a multi-purpose grease (Bearing Guard #2) as the lubricant.

3.3 DISTRIBUTOR DRIVE - Figure 3-1

[1] Trip support casting bearings (2 places): apply 2 drops of oil every 3 months.

[2] Pinion gear access holes (2 places): apply 1 drop of oil in each hole every 3 months.

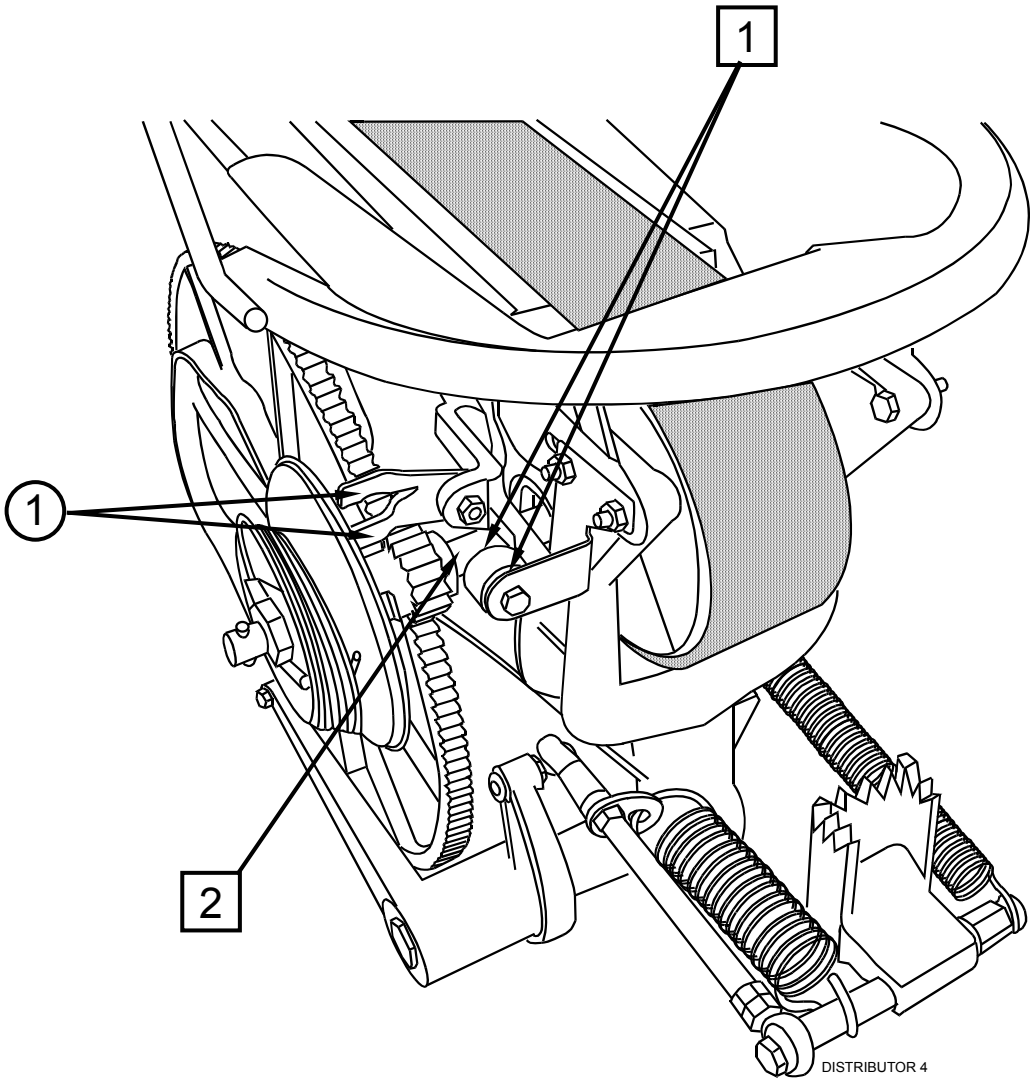


Figure 3-1

① Stop blades (2 places): apply grease to the back surfaces every 3 months.

3.4 DISTRIBUTOR - Figure 3-2

[1] Trip lever rollers (8 places): apply 1 drop of oil every 3 months.

[2] Trip lever bushings (2 places): apply 1 drop of oil every 3 months.

[3] Carriage tubes (4 places): apply a light film of oil every 3 months along the top and bottom of each tube.

[4] Distributor clutch assembly (1 place): disassemble, clean, lubricate, and adjust every 3 months.

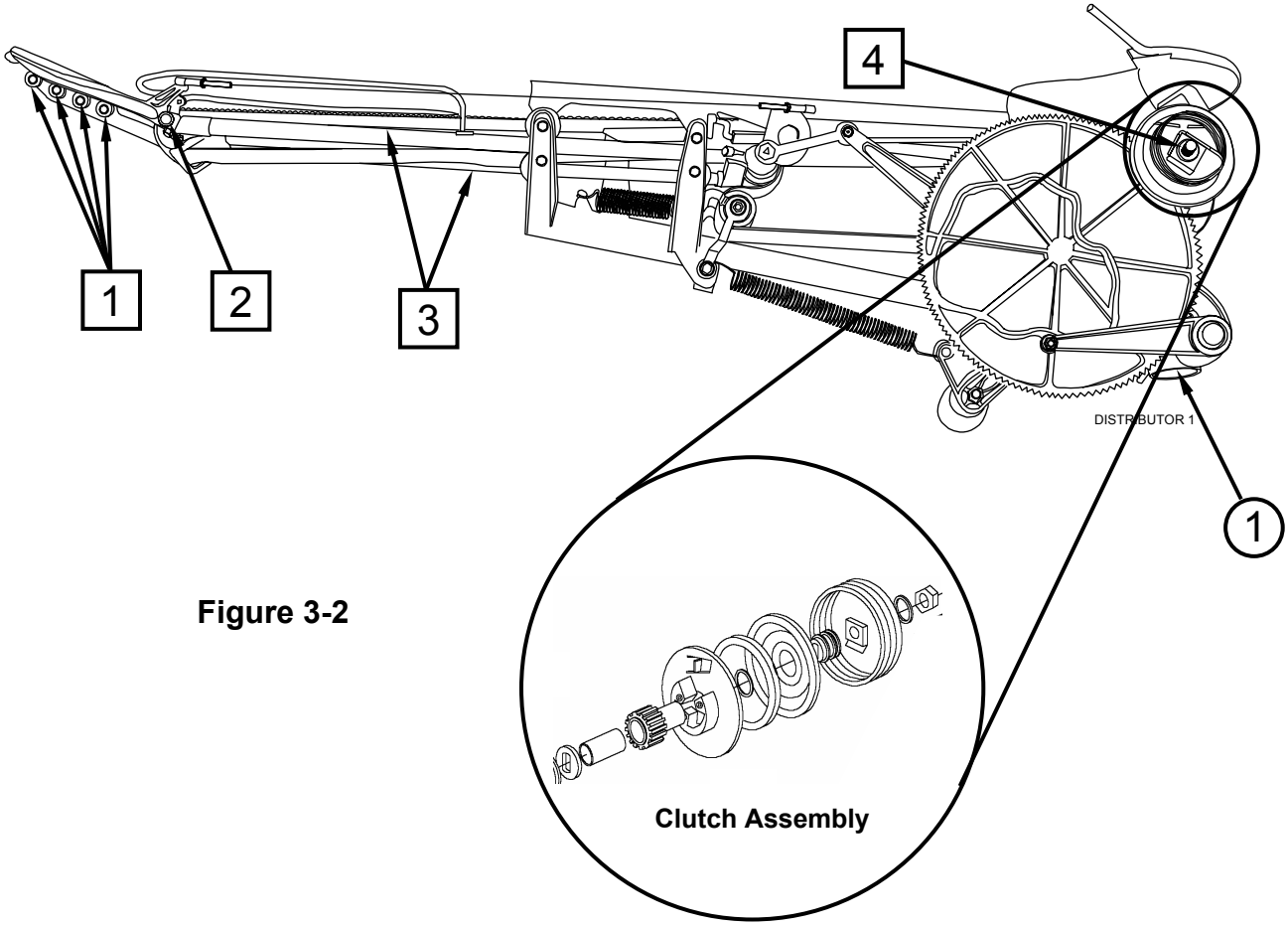
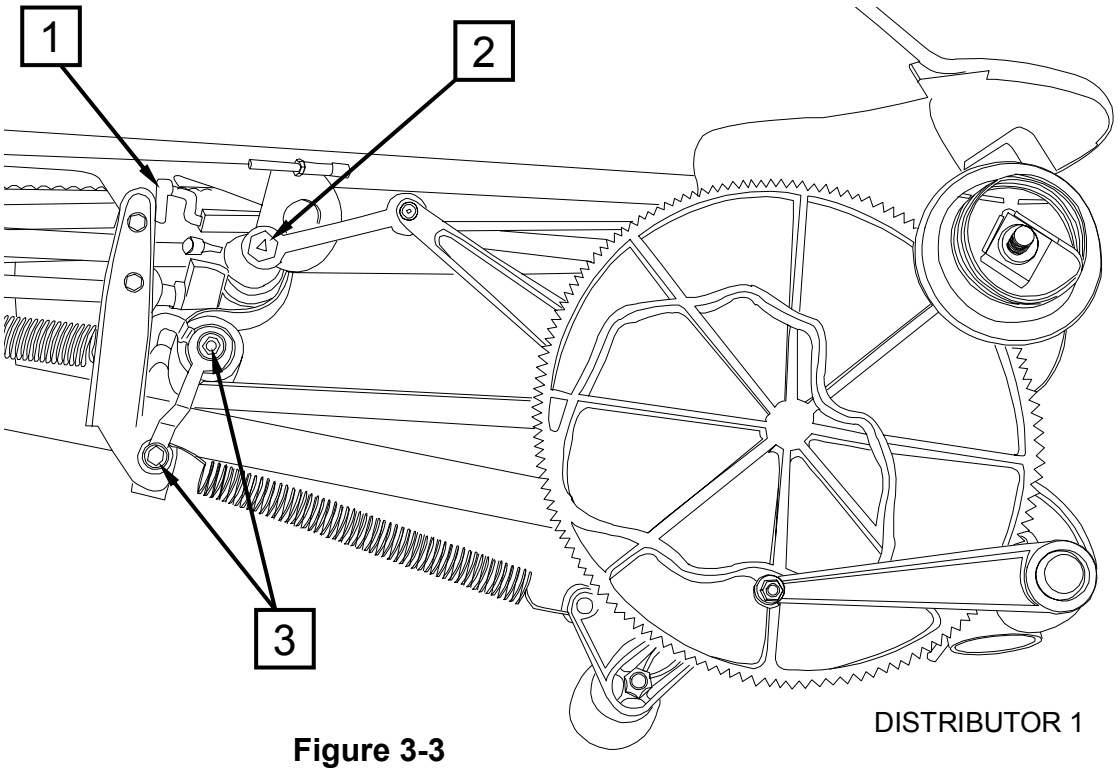


Figure 3-2

(1) Distributor support bearings (2 places): remove distributor and grease bearings once a year.

3.5 DISTRIBUTOR - Figure 3-3

1. Trip rod (front) (6 places): 1 drop of oil every 2 months.
2. Trip rocker arm (2 places): apply 1 drop of oil to each side every 3 months.
3. Roller tracking bracket (3 places): 1 drop of oil every 2 months.

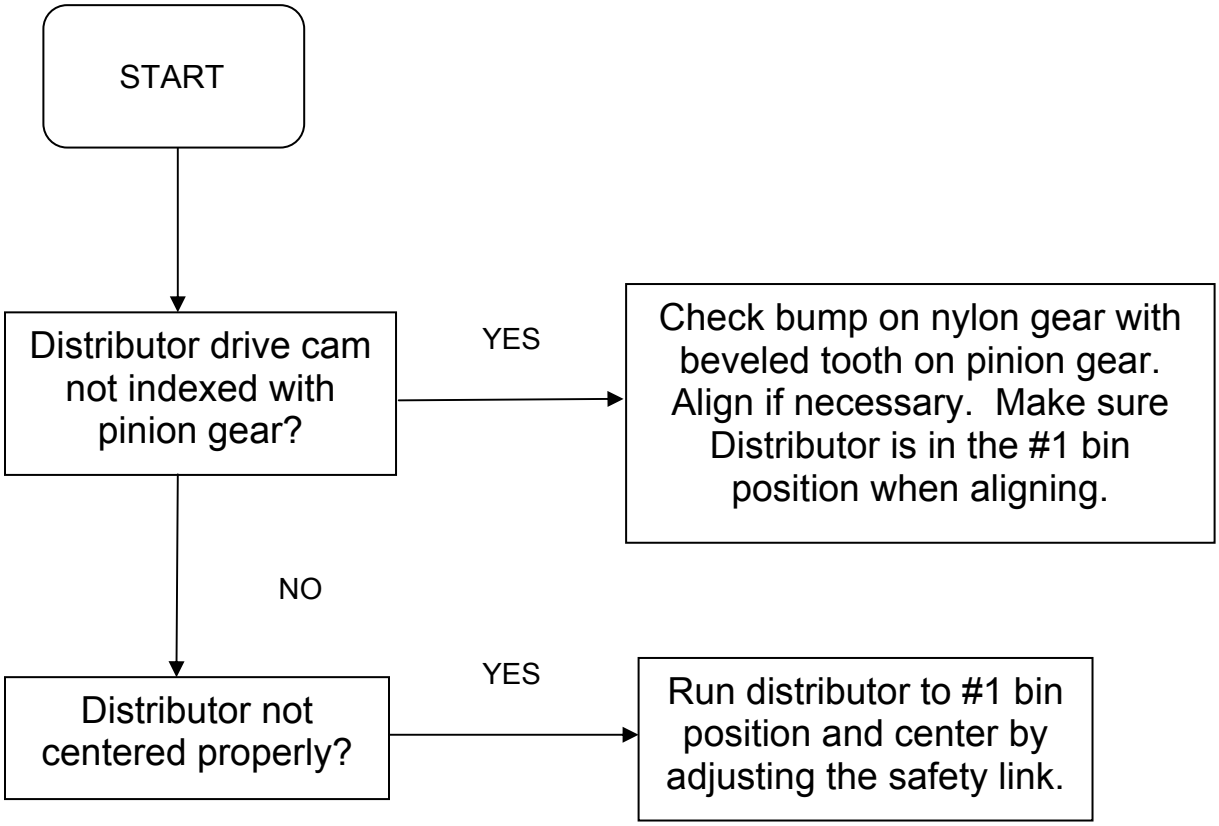


DISTRIBUTOR 1

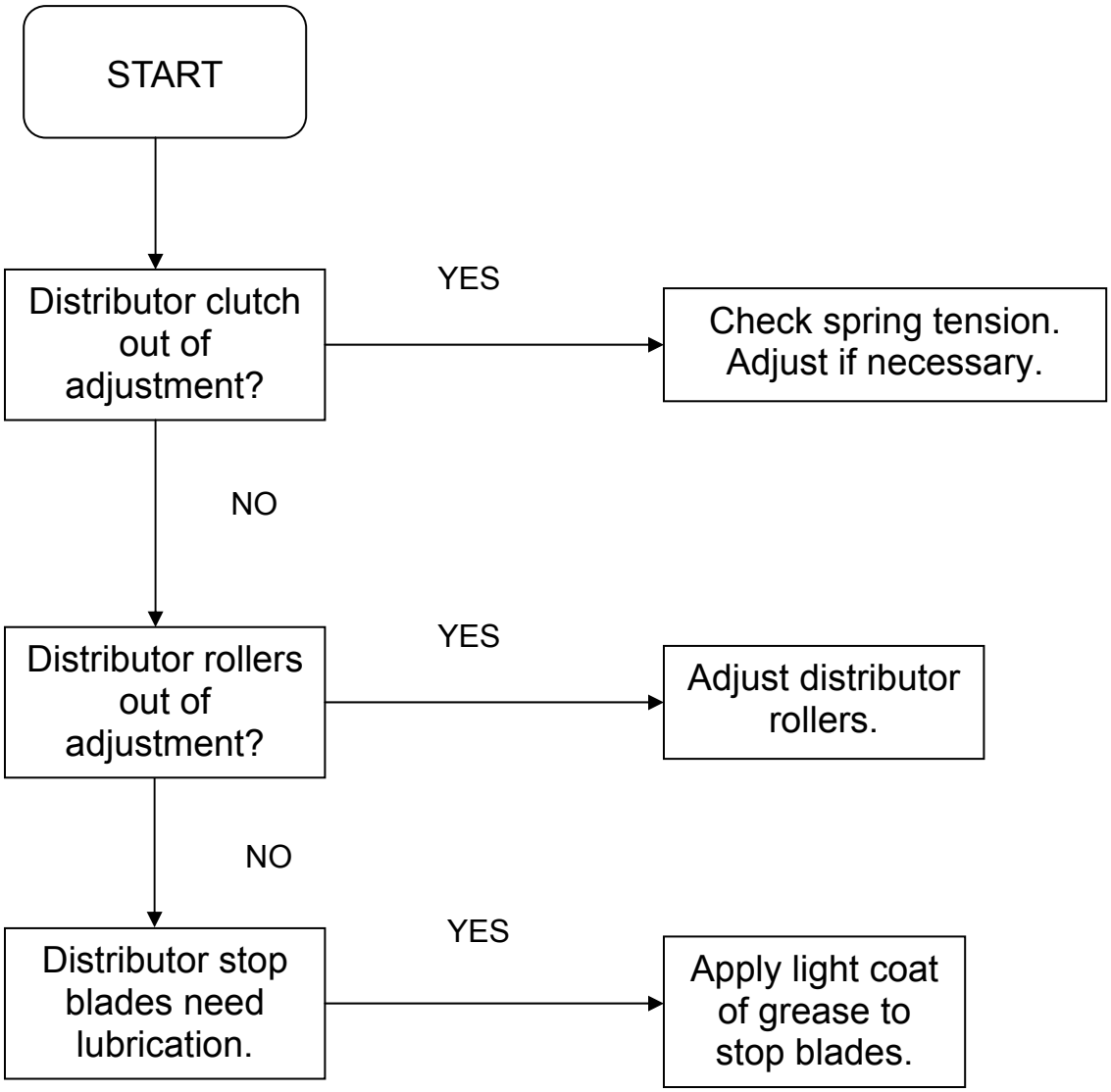
Figure 3-3

4.0 TROUBLESHOOTING

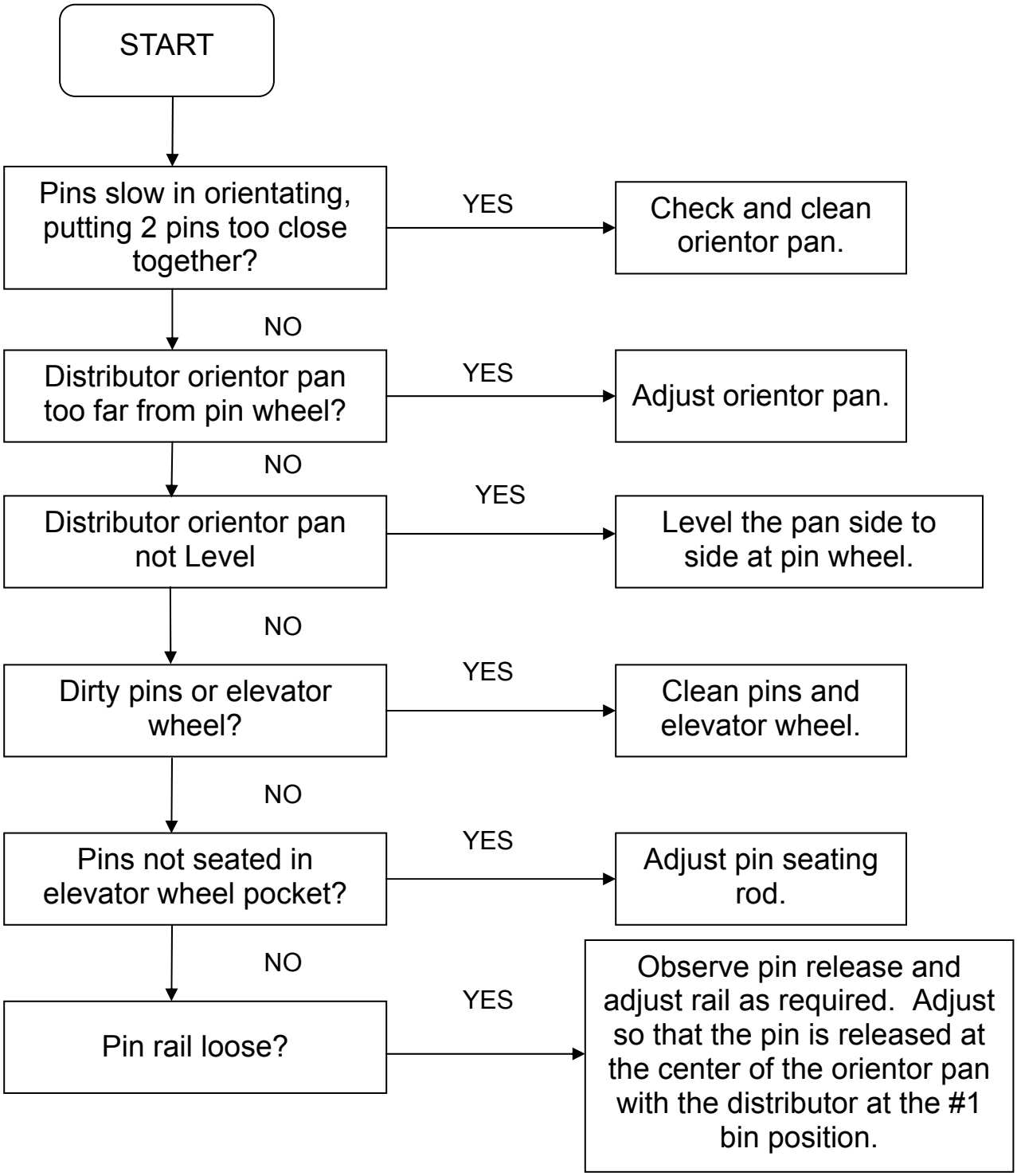
4.1 PROBLEM: Distributor does not feed pins at correct bin position.


START
Distributor drive cam not indexed with pinion gear?
YES
Check bump on nylon gear with beveled tooth on pinion gear. Align if necessary. Make sure Distributor is in the #1 bin position when aligning.
NO
Distributor not centered properly?
YES
Run distributor to #1 bin position and center by adjusting the safety link.

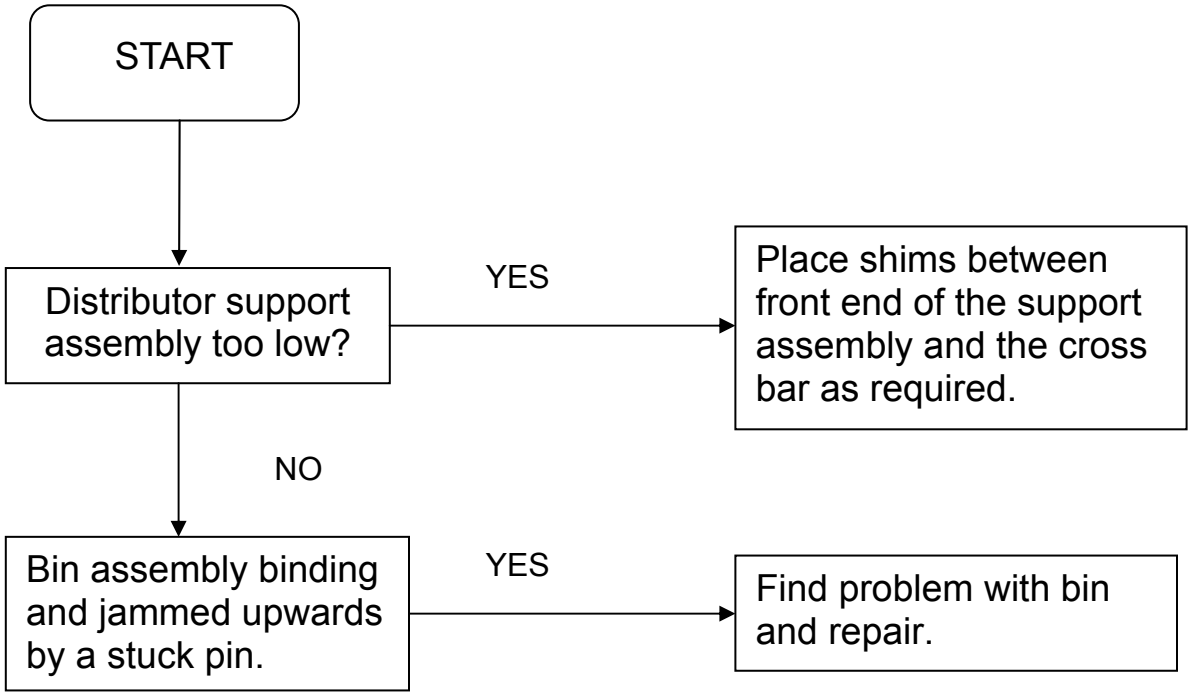
4.2 PROBLEM: Pins feed into bin continuously at one bin position or too many pins in one bin location.



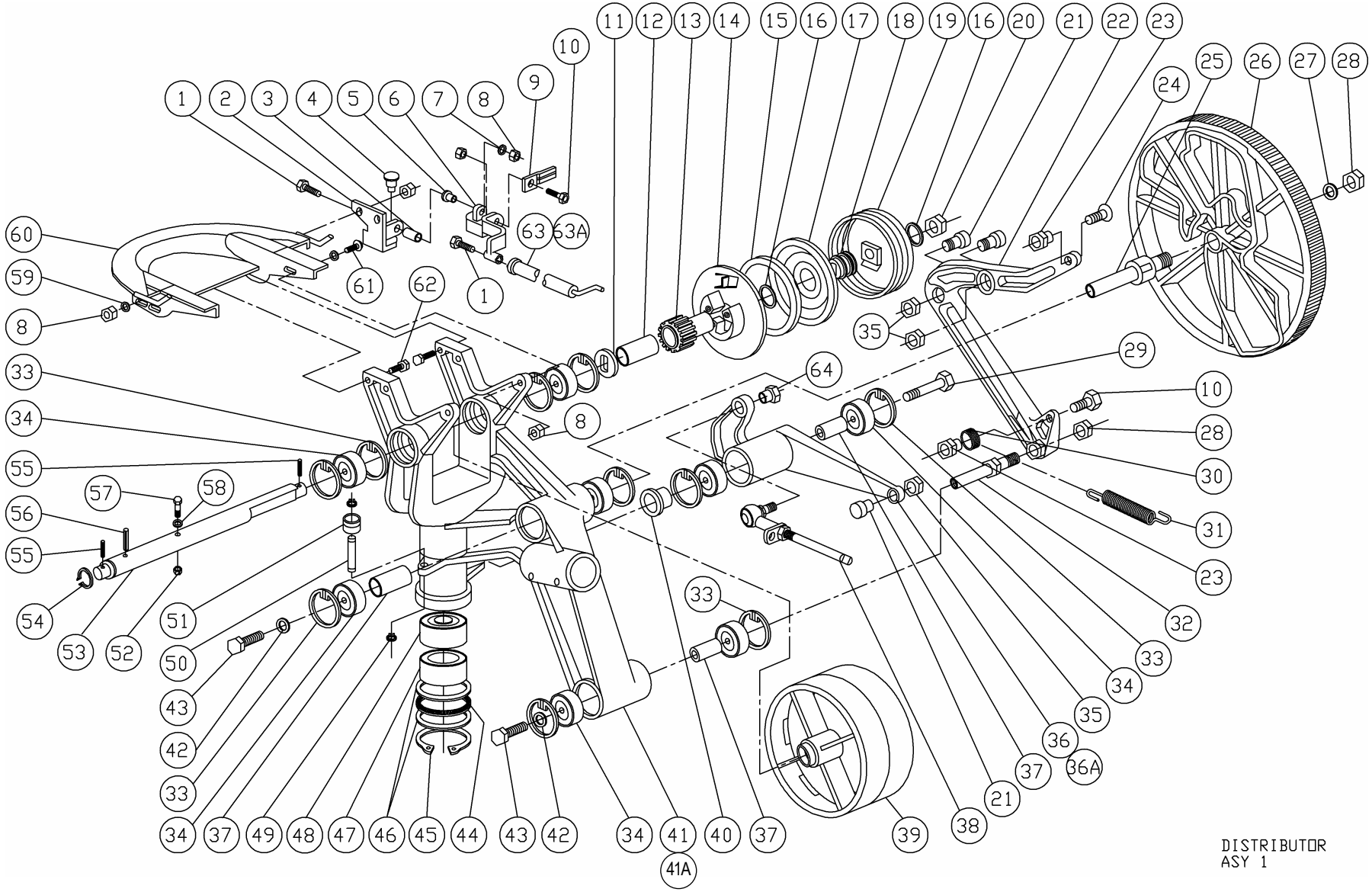
4.3 PROBLEM: Pins delivered head end first to bin pockets.


START
Pins slow in orientating, putting 2 pins too close together?
YES
Check and clean orientor pan.
NO
Distributor orientor pan too far from pin wheel?
YES
Adjust orientor pan.
NO
Distributor orientor pan not Level
YES
Level the pan side to side at pin wheel.
NO
Dirty pins or elevator wheel?
YES
Clean pins and elevator wheel.
NO
Pins not seated in elevator wheel pocket?
YES
Adjust pin seating rod.
NO
Pin rail loose?
YES
Observe pin release and adjust rail as required. Adjust so that the pin is released at the center of the orientor pan with the distributor at the #1 bin position.

4.4 PROBLEM: Distributor front end hits bin during pin feed.


START
Distributor support assembly too low?
YES
Place shims between front end of the support assembly and the cross bar as required.
NO
Bin assembly binding and jammed upwards by a stuck pin.
YES
Find problem with bin and repair.

Drawings and Parts Lists

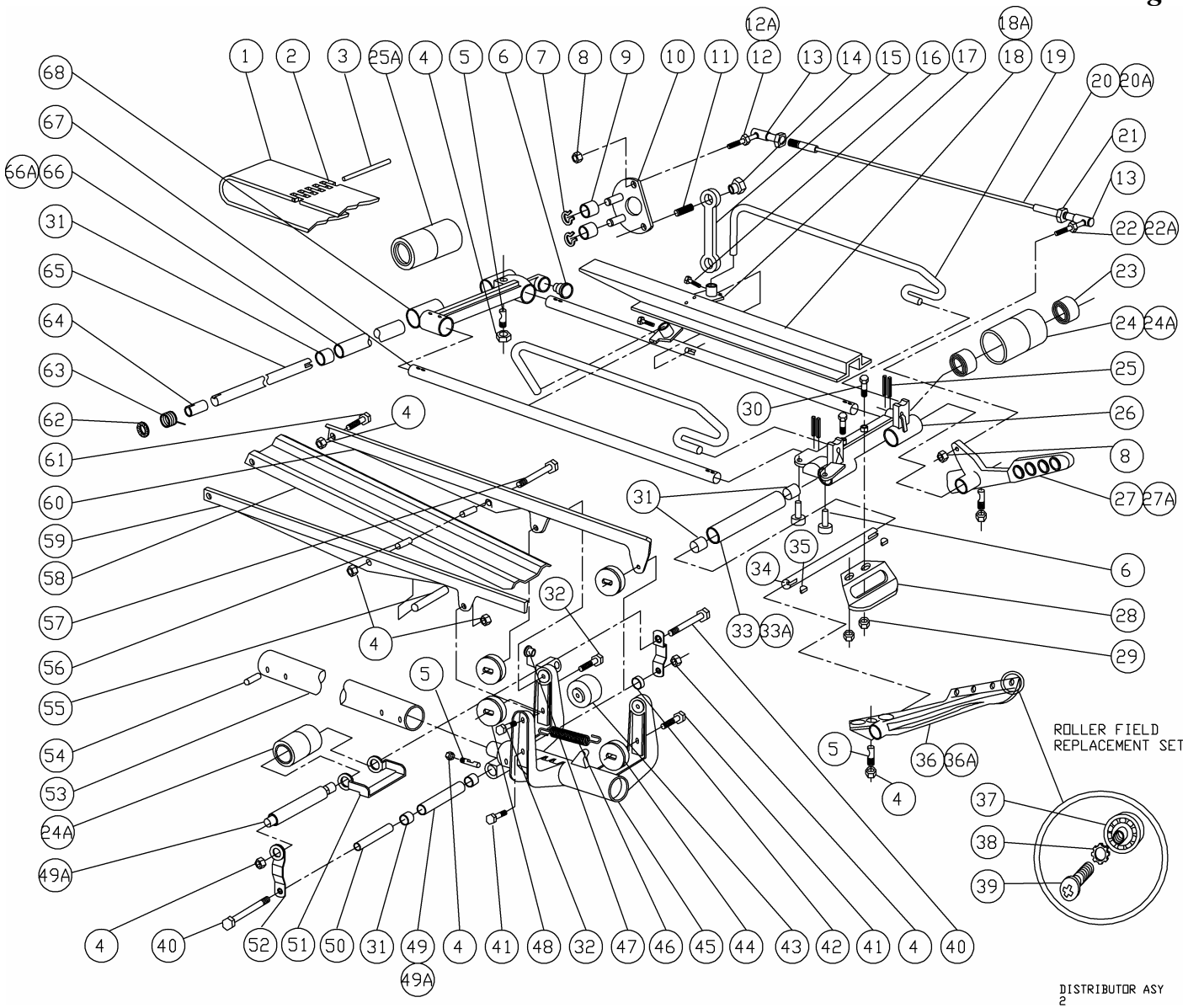

DISTRIBUTOR
ASY 1

DISTRIBUTOR ASSEMBLY 1

AMF 90XLi PINSPOTTER

ITEM	QTY	PART #	DESCRIPTION
1	2	809-849-165	SCREW, HEX, ¼ - 20 X 1
2	1	070-006-084	TRIP STOP SUPPORT BRACKET
3	1	070-006-685	PIVOT
4	1	070-006-142	BUMPER
5	1	701-712-097	BEARING, .375 BORE
6	1	090-006-665	TRIP SUPPORT CASTING ASSEMBLY
7	1	000-026-865	WASHER
8	7	844-049-002	NUT, STOVER LOCK, ¼ - 20
9	1	070-006-691	STOP BLADE
10	2	809-849-125	SCREW, HEX, ¼ - 20 X ¾
11	1	070-007-376	THRUST WASHER
12	1	070-006-676	SLEEVE
13	1	070-006-686	PINION GEAR ASSEMBLY
14	1	070-006-692	CLUTCH PLATE ASSEMBLY
15	1	070-006-126	FRICTION DISC
16	2	070-006-121	WASHER, DISTRIBUTOR CLUTCH
17	1	070-006-130	CLUTCH PLATE
18	1	070-006-125	WORM
19	1	070-006-128	SPRING ASSEMBLY
20	1	835-582-002	NUT, HEX JAM, 5/8 - 18
21	3	070-006-071	CAM FOLLOWER
22	1	070-006-051	ARM
23	3	000-022-173	NUT, SPECIAL
24	1	808-849-100	SCREW, FLAT HD HEX SOCKET ¼ - 20 X 5/8
25	1	070-006-061	CAM SUPPORT SHAFT
26	1	070-006-149	INDEXING CAM
27	1	070-006-121	WASHER
28	2	844-073-002	NUT, STOVER LOCK, 1/2 - 13
29	1	070-006-048	BOLT, SPECIAL
30	2	070-006-111	SLEEVE
31	1	070-006-034	SPRING, LINEAR
32	1	070-006-049	SHAFT ARM
33	10	919-000-600	RETAINING RING
34	8	000-024-679	BEARING
35	3	844-049-002	NUT, STOVER LOCK, ¼ - 20

ITEM	QTY	PART #	DESCRIPTION
36	1	070-006-052	DRIVE ARM
36A	1	070-007-119	DRIVE ARM ASSY (includes: 33, 34, 36 & 37)
37	3	070-006-064	BEARING SPACER
38	1	090-005-262	ROD LINK ASSEMBLY
39	1	070-006-666	PULLEY, DISTRIBUTOR DRIVE BELT
40	1	070-006-065	RACE CLAMP
41	1	see 41A	CASTING
41A	1	070-006-136	CASTING ASSEMBLY (incl: 33, 34, 37, 41, 44 45, 46, 47, & 48
42	2	948-761-112	WASHER, 11/16 X 11/32 X 1/16
43	2	809-857-080	SCREW, HEX, 5/16 – 18 X ½
44	1	070-006-074	BEARING, NEEDLE THRUST, 1.252 X 1.917
45	1	919-004-200	RETAINING RING
46	2	070-006-073	THRUST WASHER
47	1	070-006-076	NEEDLE BEARING, OPEN END
48	1	070-006-075	NEEDLE BEARING, CLOSED END
49	2	919-005-300	RETAINING RING
50	1	070-006-082	SPRING POST PIN
51	1	000-026-081	SPRING POST SLEEVE
52	1	840-039-002	NUT, FLEX LOCK, 10 – 24
53	1	070-006-077	SHAFT
54	2	919-005-600	RETAINING RING
55	2	913-437-140	SPRING PIN, 3/16 X 7/8
56	1	914-037-206	SPRING PIN, 3/16 X 1-1/4
57	1	810-239-240	SCREW, SOCKET HEAD CAP, 10-24 X 1½
58	1	948-745-082	WASHER, 7/32 X ½ X 1/16
59	6	948-753-102	WASHER, 5/8 X 9/32 X 1/16
60	1	090-003-077	ORIENTOR PAN
61	2	808-549-200	SCREW, BUTTON HEAD, 1/4 - 20 X 1-1/2
62	4	809-849-205	SCREW, HEX, ¼ - 20 X 1¼
63	1	090-006-663	TRIP STOP ROD ASSEMBLY
63A	1	090-006-668	TRIP STOP ROD & SUPPORT CASTING ASSEMBLY (includes 5, 6, 62, & 63)
64	1	070-006-069	NUT, SPECIAL

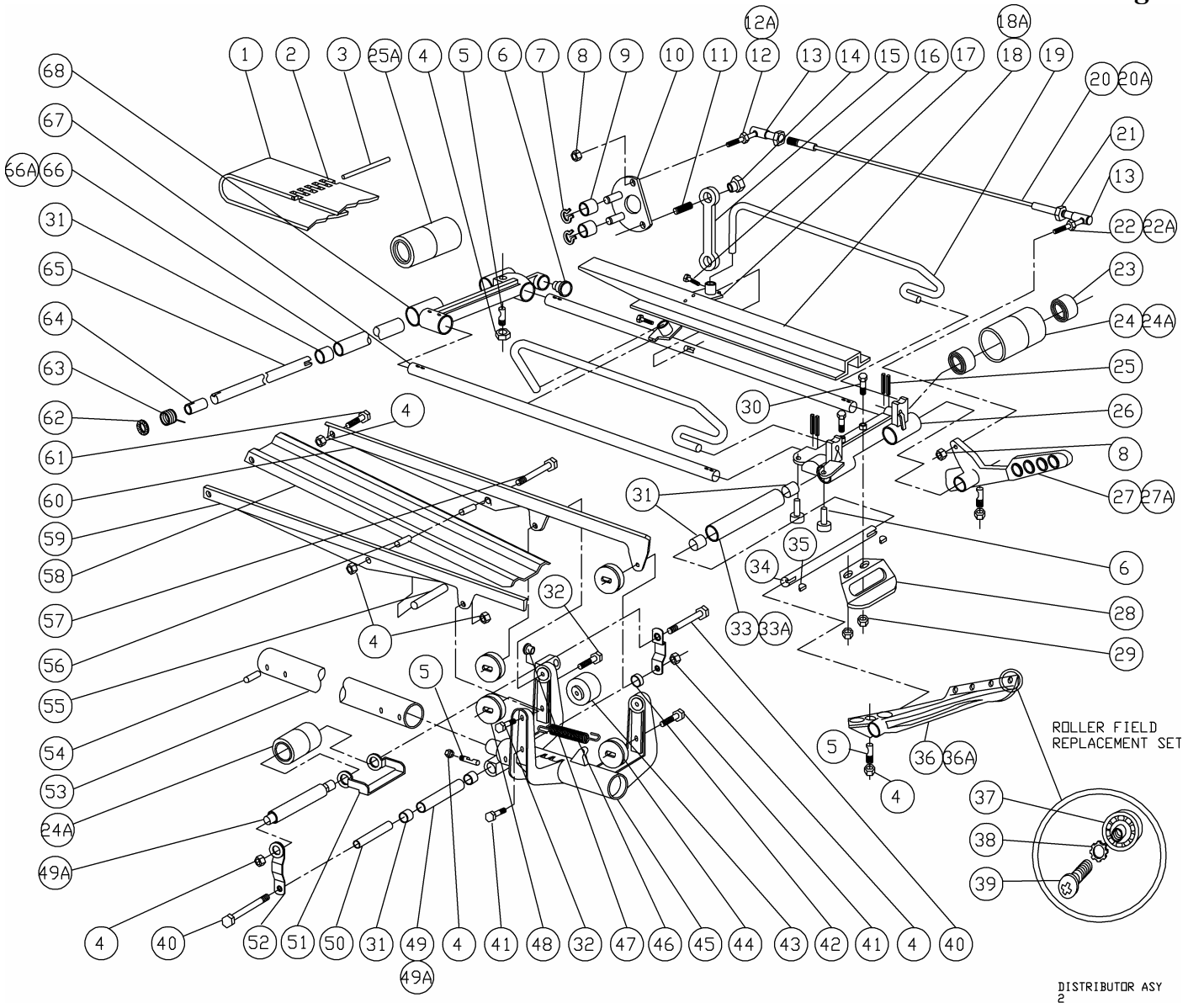

ROLLER FIELD
REPLACEMENT SET
DISTRIBUTOR ASY
2

DISTRIBUTOR ASSEMBLY 2

AMF 90XLi PINSPOTTER

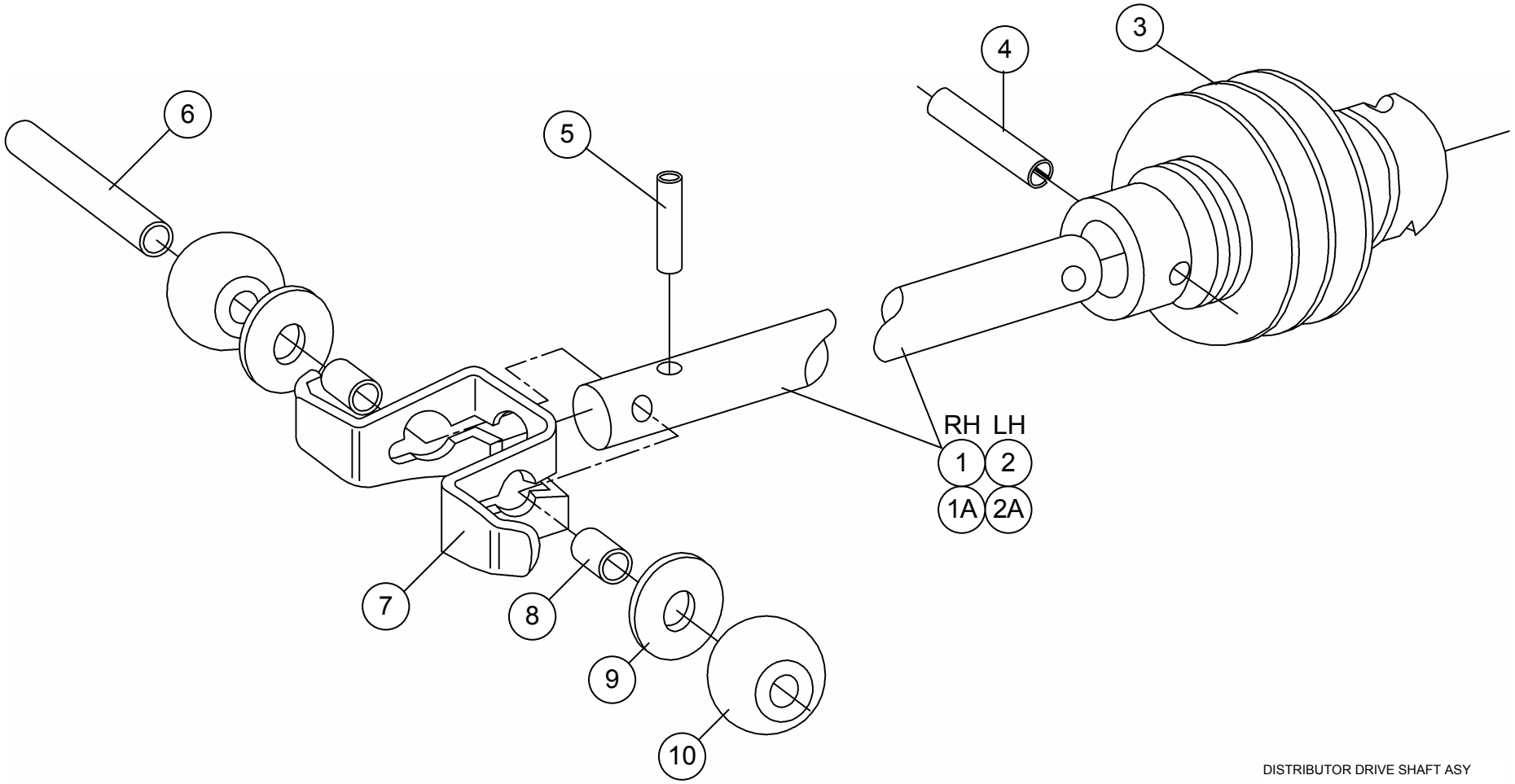
ITEM	QTY	PART #	DESCRIPTION
1	1	see 1A	BELT
1A	1	070-006-757	BELT ASSEMBLY (includes items 1, 2, & 3)
2	2	070-006-036	BELT LACING
3	1	070-006-037	BELT PIN
4	17	844-049-002	NUT, STOVER LOCK, ¼ - 20
5	5	070-006-116	CLAMP STUD
6	3	070-006-142	BUMPER
7	2	919-005-600	RETAINING RING
8	1	840-040-002	NUT, FLEX LOCK, THIN, 10 - 32
9	2	070-001-857	NYLON ROLLER
10	1	070-006-661	TRIP ROCKER ARM WELDMENT
11	1	807-249-160	SETSCREW, SOCKET HEAD, ¼ - 20 X 1
12	1	090-004-110	BALL HEAD STUD
12A	1	070-011-172	BALL JOINT ASSEMBLY (includes 12 & 13)
13	2	090-004-112	SHELL & CLIP ASSEMBLY
14	1	000-022-173	NUT, SPECIAL
15	1	070-006-029	CONNECTING LINK
16	2	806-249-060	SETSCREW, SQUARE HEAD, ¼-20 X 3/8
17	1	070-006-007	SUPPORT WELDMENT
18	1	see 18A	BELT RUNNER, FRONT
18A	1	070-006-009	BELT RUNNER SUPPORT ASSY (incl. 17 & 18)
19	2	070-006-013	PIN GUIDE
20	1	070-011-171	CABLE
20A	1	070-011-170	DISTRIBUTOR CABLE ASSEMBLY, (incl. 12, 13, 19, 21, & 22)
21	2	835-550-002	NUT, HEX JAM, ¼ - 28
22	1	090-004-111	BALL HEAD STUD
22A	1	070-011-173	BALL JOINT ASSEMBLY (includes 13 & 22)

ITEM	QTY	PART #	DESCRIPTION
23	6	000-024-679	BEARING
24	3	see 24A	IDLER CARRIAGE PULLEY
24A	3	070-006-011	PULLEY ASSEMBLY (includes 23 & 24)
25	8	913-437-140	SPRING PIN, .187 X 7/8
26	1	070-006-055	CARRIAGE, FRONT
27	1	see 27A	TRIP ARM, R.H.
27A	1	070-006-015	TRIP ARM ASSY (R.H.) (#27 & factory rollers)
28	1	070-006-137	BELT GUARD
29	2	840-039-002	NUT, FLEX LOCK, 10 - 24
30	2	810-239-160	SCREW, SOCKET HEAD CAP, 10-24 X 1
31	8	900-106-081	SLEEVE BEARING, .378 X 1/2
32	5	809-849-125	SCREW, HEX, ¼ - 20 X ¾
33	1	see 33A	TUBE
33A	1	070-006-021	TUBE ASSEMBLY, FRONT (includes 31 & 33)
34	1	070-006-014	SHAFT
35	2	907-000-100	KEY
36	1	see 36A	TRIP ARM, L.H.
36A	1	070-006-016	TRIP ARM ASSY (L.H.) (#36 & factory rollers)
37	10	000-026-251	ROLLER BEARING, THREADED (field replacement)
38	10	957-100-002	WASHER, EXTERNAL LOCK, # 10
39	10	813-540-082	SCREW, TRUSS HEAD, 10 - 32 X ½
40	2	809-849-605	SCREW, HEX, ¼ - 20 X 3¾
41	6	809-849-165	SCREW, HEX, ¼ - 20 X 1
42	1	070-006-111	SPRING POST SLEEVE
43	1	701-849-124	BALL BEARING, ¼ - 20 THREADED BORE
44	3	070-006-118	BEARING, GROOVED, ECCENTRIC


ROLLER FIELD
REPLACEMENT SET
DISTRIBUTOR ASY
2

ITEM	QTY	PART #	DESCRIPTION
45	1	see 45A	CARRIAGE SUPPORT CASTING
45A	1	070-006-688	CARRIAGE SUPPORT ASSY (incl: 45 & 47)
46	1	000-026-031	BELT TIGHTENER SPRING
47	1	701-710-098	BEARING, UNIBALL
48	1	070-006-117	BEARING, GROOVED, CONCENTRIC
49	2	070-006-107	BELT TIGHTENER TUBE
49A	2	070-006-105	TUBE ASSEMBLY (includes 31, 49 & 50)
50	2	070-006-108	SPACER
51	1	070-006-106	TRACKING BRACKET
52	2	070-006-109	ROLLER ASSEMBLY LINK
53	1	070-006-120	CARRIAGE SUPPORT TUBE
54	4	913-464-280	SPRING PIN, 3/8 X 1¾
55	1	070-006-139	INNER SPACER
56	2	070-006-140	OUTER SPACER
57	1	809-849-885	SCREW, HEX, ¼ - 20 X 5½
58	1	070-006-042	BELT RUNNER, REAR
59	1	070-006-103	SUPPORT GUIDE, L.H.
60	1	070-006-104	SUPPORT GUIDE R.H.
61	2	808-549-200	SCREW, BUTTON HEAD, ¼ - 20 X 1-1/4
62	1	919-006-800	RETAINING RING
63	1	070-006-035	SPRING
64	1	070-006-019	SPRING COLLAR
65	1	070-006-659	SHAFT
66	1	see 66A	TUBE, MIDDLE
66A	1	070-006-683	TUBE ASSEMBLY, MIDDLE (incl: 31 & 66)
67	2	070-006-004	TUBE
68	1	070-006-672	CARRIAGE CASTING, REAR

ITEM	QTY	PART #	DESCRIPTION


6
5
4
3
RH LH
1 2
1A 2A
7
8
9
10
DISTRIBUTOR DRIVE SHAFT ASY

DISTRIBUTOR DRIVE SHAFT ASSEMBLY

AMF 90XLi PINSPOTTER

ITEM	QTY	PART #	DESCRIPTION
1	1	090-002-018	SHAFT, R.H. MACHINE
1A	1	090-006-102	DISTRIBUTOR DRIVE SHAFT ASSY – R.H. (Includes items 1 & 3 through 10)
2	1	090-002-017	SHAFT L.H. MACHINE
2A	1	090-006-103	DISTRIBUTOR DRIVE SHAFT ASSY – L.H. (Includes items 2 through 10)
3	1	070-007-586	UNIVERSAL JOINT
4	1	913-437-160	SPRING PIN, .187 X 1
5	1	913-423-120	SPRING PIN, .125 X ¾
6	1	908-048-480	DOWEL PIN, 1/4 X 3
7	1	090-002-034	BALL BEARING RETAINER
8	2	722-501-070	SPACER
9	2	000-029-073	WASHER
10	2	090-002-019	BALL

ITEM	QTY	PART #	DESCRIPTION